VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Abstract

The paragraph at page 15, lines 3-13 has been amended as follows:

A positioner (20) for a disk drive (10) that includes a magnet assembly (52), a conductor assembly (54), and a control system (22) is provided herein. The magnet assembly (52) includes a pair of magnet arrays (56A) (56B) and a pair of spaced apart flux return plates (75A) (75B). The conductor assembly (54) includes a coil array (78). The coil array includes a first portion (84) and a second portion (86) that are positioned substantially perpendicular to a longitudinal axis (~~4390~~**439**) of an E-block (16). The control system (22) directs current to electrically excite the first and second portions (84) (86) to generate a first force F_1 and a second force F_2 which are (i) parallel to the longitudinal axis (~~4390~~**439**) of the E-block (16), and (ii) equal in magnitude and directionally opposite to better position a data transducer (50) on a target track (32) of a storage disk (28).

In the Specification

The paragraph at page 4, lines 13-14 has been amended as follows:

Figure 4 is a side view of one embodiment of an upper magnet array and a lower magnet array; **and**

The paragraph at page 4, lines 27-32 has been amended as follows:

A detailed description of the various components of a disk drive 10 is provided in U.S. Patent No. 5,208,712, issued to Hatch et al., and assigned to **Maxtor**~~Quantum~~ Corporation, the assignee of the present invention. The contents of U.S. Patent No. 5,208,712 are incorporated herein by reference. Accordingly, only the structural aspects of a disk drive 10 that are particularly significant to the present invention, are provided in detail herein.

The paragraph at page 6, lines 5-11 has been amended as follows:

The actuator arms 38 move with the actuator hub 36 and position the transducer assemblies 22 between the storage disks **28~~26~~**, proximate the data storage surfaces 30. Each actuator arm 38 includes a proximal section 42 that is secured to the actuator hub 36 and a distal section 44 that cantilevers away from the actuator hub 36. The spacing of the actuator arms 38 varies according to the spacing of the storage disks 28. The distance between consecutive actuator arms 38 is typically between about one millimeter (1 mm) to three millimeters (3 mm).

The paragraph at page 6, lines 27-33 has been amended as follows:

The positioner 20 precisely moves and positions the E-block 16 and the data transducers 50 relative to the storage disks 28. The design of the positioner 20 can **be** varied in accordance with the teachings provided herein. Referring to Figure 2, the positioner 20 includes a magnet assembly 52 and a conductor assembly 54. As provided herein, the positioner 20 positions and maintains the position of the data transducers 50 with improved accuracy, eliminates the major system mode of the head stack assembly 15, and allows for a higher servo bandwidth.

The paragraph at page 7, lines 17-29 has been amended as follows:

Referring to Figures 3, 4 and 5, a transition zone 70 vertically divides each magnet array 56A, 56B into a first sector 72 and a second sector 74 which are side-by-side. The transition zone 70 is represented by dashed lines. Each of the sectors 72, 74, when magnetized, has a north pole and a south pole. The poles of the first and second sectors 72, 74, for the upper magnet array 56A are inverted and the first and second sectors 72, 74 for the lower magnet array 56B **are inverted**. Further, (i) the poles of the first sector 72 of the upper magnet array 56A and poles of the first sector 72 of the lower magnet array 56B are opposed and (ii) the poles of the second sector 74 of the upper magnet array 56A and poles of the second sector 74 of the lower magnet array 56B are opposed. Referring to Figure 4, as a result of this design, the magnetic fields 73 (represented as an arrow) between the first sectors 72 of the magnet arrays 56A, 56B are opposite from the magnetic fields 73 between the second sectors 74 of the magnet arrays 56A, 56B.

The paragraph at page 8, lines 16-30 has been amended as follows:

Figure 3 illustrates one embodiment of a coil array 78 having features of the present invention. In this embodiment, the coil array 78 is a somewhat flat, generally D-shaped loop that includes a substantially linear first segment 80 and a curved, arc shaped, second segment 82. The coil array 78 is secured to the E-block 16 with (i) the first segment 80 extending substantially perpendicular to the longitudinal axis 43 of the E-block 16, and (ii) the second segment 82 forming an arc that is centered at the E-block pivot center 41. Moreover, the first segment 80 and the second segment 82 are preferably positioned symmetrically about the longitudinal axis 43 of the E-block 16. For purposes of this discussion, the first segment 80 can be divided into a first portion 84, a second portion 86, and a center portion 88. The first portion 84, the second portion 86, and the center portion 88 are preferably oriented substantially perpendicular to the longitudinal axis **43~~90~~** of the E-block 16. The center portion 88 is positioned between the first portion 84 and the second portion 86, and connects the first portion 84 to the second portion 86 to form a continuous first segment 80 of the coil array 78.

In the Claims

The claims have been amended as follows:

1. (Amended) A positioner for moving an E-block and a data transducer of a disk drive relative to a storage disk, the E-block having a longitudinal axis, the positioner comprising:

a magnet assembly producing a magnetic field; and

a coil array that couples to the E-block and is positioned near the magnet assembly, the coil array **being a generally D-shaped loop** including a first segment that is positioned substantially perpendicular to the longitudinal axis of the E-block, the first segment being adapted to interact with the magnetic field to move the E-block relative to the storage disk.

13. (Amended) A head stack assembly for moving a data transducer of a disk drive relative to a target track of a storage disk, the head stack assembly comprising:

an E-block having a longitudinal axis;

a transducer assembly secured to the E-block, the transducer assembly including a data transducer;

a positioner including (i) a magnet assembly producing a magnetic field, (ii) a coil array secured to the E-block and positioned near the magnet assembly, the coil array **being a generally D-shaped loop** including a first segment positioned substantially perpendicular to the longitudinal axis, the first segment including (i) a first portion, and (ii) a second portion;~~,~~ and

a control system that directs current to the coil array to move the data transducer relative to the target track.

20. (Amended) A method for retrieving data from a target track on a rotating storage disk of a disk drive, the method comprising the steps of:

providing an E-block with a longitudinal axis;

securing a transducer assembly to the E-block, the transducer assembly including a data transducer;

providing a magnet assembly producing a magnetic field;

coupling a coil array to the E-block with the coil array being positioned near the magnet assembly, the coil array **being a generally D-shaped loop** including (i) a first portion; and (ii) a second portion, the first and second portions being perpendicular to the longitudinal axis, the first and second portions being positioned symmetrically about the longitudinal axis; and

directing current to the coil array to move the data transducer relative to the target track.

21. (Amended) The method of claim 20 **wherein** ~~further comprising the step of~~ directing current to the coil array includes directing current to the first portion and the second portion to generate a first force and a second force, respectively, wherein the first force is substantially equal in magnitude and opposite in direction to the second force.

REMARKS

Claims 1-40 are pending. In this Response, claims 1, 13, 20 and 21 have been amended, and claims 23-40 have been added.

I. SECTION 102 REJECTIONS

Claims 1, 10, 11 and 12 are rejected under 35 U.S.C. § 102(b) as being anticipated by *Tohkairin* (U.S. Patent 5,963,398).

Tohkairin discloses a voice coil motor that includes movable coil 90, lower magnet 154 and upper magnet 156. Movable coil 90 includes right and left coil portions 90-1 and 90-2 and front and rear coil portions 90-3 and 90-4. Movable coil 90 is a generally rectangularly shaped loop as shown in Figs. 14 and 27.

Claims 1, 13 and 20 as amended recite "the coil array being a generally D-shaped loop." The Specification provides support at page 8, lines 17-19. *Tohkairin* fails to teach or suggest this approach.

Under 35 U.S.C. §102, anticipation requires that each and every element of the claimed invention be disclosed in the prior art. *Akzo N.V. v. United States International Trade Commission*, 1 USPQ 2d 1241, 1245 (Fed. Cir. 1986), *cert. denied*, 482 U.S. 909 (1987). That is, the reference must teach every aspect of the claimed invention. M.P.E.P. § 706.02, page 700-10 (July, 1998).

Therefore, Applicant respectfully requests that these rejections be withdrawn.

II. SECTION 103 REJECTIONS

Claims 3-9 and 13-22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Tohkairin* in view of *Kotani* (U.S. Patent 5,119,253).

Kotani discloses a moving coil type actuator that includes moving coil 3 and first and second permanent magnets 7 and 8. Moving coil 3 is a generally rectangularly shaped loop as shown in Fig. 5.

Claims 1, 13 and 20 as amended recite "the coil array being a generally D-shaped loop." Neither *Tohkairin* nor *Kotani*, alone or in combination, teach or suggest this approach.

To establish a prima facie case of obviousness (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings; (2) there must be a reasonable expectation of success; and (3) the prior art reference (or references when combined) must teach or suggest all the claim limitations (MPEP § 2143). See also *C.R. Bard, Inc. v. M3 Systems, Inc.*, 157 F.3d 1340, 1351 (Fed. Cir. 1998). It is insufficient that the prior art shows similar components unless it also contains some teaching, suggestion or incentive for arriving at the claimed structure. See *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 934 (Fed. Cir. 1990).

Therefore, Applicant respectfully requests that these rejections be withdrawn.

III. NEW CLAIMS

Claims 23-40 have been added to clarify and explicate various features of the invention. No new matter has been added.

Claims 23 and 37 recite "the coil array is a generally D-shaped loop." Therefore, claims 23-40 distinguish over the art of record for the reasons mentioned above.

IV. OTHER AMENDMENTS

The Abstract, Specification and Claims have been amended to improve clarity. No new matter has been added.

V. FEES

The fee is calculated below:

For	Claims Remaining After Amendment	Highest Number Previously Paid For		Extra Claims	Rate		Additional Fee
Total Claims	40	– 22	=	18	x $18	=	$324
Independent Claims	5	– 3	=	2	x $84	=	$168
Multiple Dep. Claim	0	0			$280	=	$0
Total Fee						=	$492

Please charge the $492 fee and charge any underpayment and credit any overpayment to Deposit Account No. 13-0016/Q00-1101-US1.

VI. CONCLUSION

In view of the amendments and remarks set forth herein, the application is believed to be in condition for allowance. Should any issues remain, the Examiner is encouraged to telephone the undersigned attorney.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231, on November 29, 2002.

D Sigmond

David M. Sigmond
Attorney for Applicant

11/29/02
Date of Signature

Respectfully submitted,

D Sigmond

David M. Sigmond
Attorney for Applicant
Reg. No. 34,013
(303) 702-4132
(303) 678-3111 (fax)